

Serial No.: 10/686,714
Art Unit: 2854

Docket No. 23248.00
Customer No. 37833

REMARKS

By the present amendment, Claims 1, 4, 5, 18-20, 25-30, and 33 have been amended, and Claim 22 has been cancelled. Claims 1-21 and 23-34 remain pending in the present application. Claims 1 and 18 are independent claims.

Applicant respectfully submits that the amendments to the specification, abstract, claims and drawings are fully supported by the original disclosure, and introduce no new matter therewith. Applicant respectfully requests reconsideration and allowance in view of the foregoing amendments and the following remarks.

Applicant notes that the claims have not been examined with respect to the prior art, and respectfully requests that the next Office Action, if produced, be a non-final Office Action so Applicant can fully respond to any cited prior art.

Applicant acknowledges the election with traverse of the invention of Claims 1-34 (Invention 1) drawn to a method and apparatus for applying a mesh screen to inner and outer frames. Claims 35-50 are withdrawn from consideration by the Examiner as being directed to a non-elected invention. Applicant has accordingly cancelled claims 35-50 to expedite prosecution of the application. However, it should be noted that under the provisions of 35 U.S.C. § 121 Applicant reserves the right to file a divisional application directed to the non-elected subject matter.

The disclosure is objected to because of informalities. In particular the Examiner noted that the specification fails to address all of the reference numerals in the drawings and some figures in their entirety. The Examiner also noted that it is not clear how the

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Amendments to the Drawings:

The attached sheets of drawings include changes to Figs. 15A, 15B, 15C, 23A, 23B, 25B, 26B, 26C, 26D, 27A, 27B, 28, 29, 30, 33B, 34A, 34B, 35, 38A, 38B, 39A, 39B, 40A, 40B, 41A, 41B, 44B, 45A, 45B, 46A, 46B, 48, 49, 51A, and 51B. The changes to Figs. 15A, 15B, 15C, 23A, 23B, 25B, 26B, 26C, 26D, 27A, 27B, 28, 29, 30, 33B, 34A, 34B, 35, 38A, 38B, 39A, 39B, 40A, 40B, 41A, 41B, 44B, 45A, 45B, 46A, 46B, 48, 49, 51A, and 51B change and delete various reference numerals to ensure compliance with 37 CFR 1.84(p)(5).

Attachments: Replacement Sheets for Figs. 15A, 15B, 15C, 23A, 23B, 25B, 26B, 26C, 26D, 27A, 27B, 28, 29, 30, 33B, 34A, 34B, 35, 38A, 38B, 39A, 39B, 40A, 40B, 41A, 41B, 44B, 45A, 45B, 46A, 46B, 48, 49, 51A, and 51B

Annotated Sheet Showing Changes to Figs. 15A, 15B, 15C, 23A, 23B, 25B, 26B, 26C, 26D, 27A, 27B, 28, 29, 30, 33B, 34A, 34B, 35, 38A, 38B, 39A, 39B, 40A, 40B, 41A, 41B, 44B, 45A, 45B, 46A, 46B, 48, 49, 51A, and 51B .

inner frame is attached to the screen/mesh. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include numerous reference characters not mentioned in the description.

Applicant has amended the specification and abstract to clarify how the inner and outer frames are attached to the screen/mesh, and to include all reference numerals indicated on the drawings. Figs. 15A, 15B, 15C, 23A, 23B, 25B, 26B, 26C, 26D, 27A, 27B, 28, 29, 30, 33B, 34A, 34B, 35, 38A, 38B, 39A, 39B, 40A, 40B, 41A, 41B, 44B, 45A, 45B, 46A, 46B, 48, 49, 51A, and 51B have been amended to change and delete various reference numerals to ensure compliance with 37 CFR 1.84(p)(5).

Applicant respectfully submits that the drawing changes and the amendments to the specification and abstract overcome these objections, are fully supported by the original disclosure, and introduce no new matter therewith.

Claims 1-34 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement because it cannot be accurately determined if the inner and outer frames are attached to the same, or different, part of the mesh screen, and because the language "in the print direction" with respect to both frames appears to recite that both frames are attached to the same part of the mesh screen. The Examiner also noted that in Claims 10, 11, 18, 27, and 28, the construction of the ink/fluid barriers is unclear from both the specification and the drawings. The Examiner also noted that in Claim 22 it is not apparent what structure is encompassed by "means for applying strip material" to the edges of the screen/mesh. The cancellation of

Claim 22 renders this rejection moot with respect to this particular claim. Applicant respectfully traverses this rejection.

Applicant respectfully submits that original Claims 1-34 fully satisfied the specific requirements of 35 U.S.C. § 112, first paragraph because the claimed method and apparatus for stretching and mounting a screen printing screen was described in the specification, as originally filed, in such a way as to enable one skilled in the screen printing art to make and/or use the invention.

The method and apparatus for stretching and mounting a screen printing screen described throughout the specification attaches ends of the outer frame to ends of the screen/mesh and attaches sides of the inner frame to sides of the screen/mesh. Initially, an end of the screen/mesh is clamped and the other end is stretched with significant tension. The stretched screen/mesh is then attached to ends of the outer frame. The ends of the outer frame are perpendicular to the print direction of the screen/mesh. The sides of the inner frame are then attached to sides of the screen/mesh. The sides of the inner frame are parallel to the print direction of the screen/mesh.

Conventional frames for use with printing images on screen/meshes are well known to those skilled in the screen printing art. Such frames are single frames with integrally constructed ends and sides. The screen/mesh is initially clamped and stretched in two directions, and the screen/mesh is then attached to the ends and sides of the single frame. Once the screen/mesh is attached to the ends and sides of the single frame, excess screen/mesh is trimmed and the screen/mesh is then ready for imaging and use. Once the

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screen/mesh is attached to the single frame resistive forces to deflection are applied under a squeegee action in the plain of the screen/mesh stretching. This results in variation in the squeegee deflection and screen/mesh contact across the width of the print image and perpendicular to the print direction. The dual frame system described in the specification overcomes the problems of the conventional frames for use with printing image.

Screen printing achieves the highest ink deposit but is the slowest and most expensive of the standard print process, originating in the costs of stretching a screen/mesh, then reclaiming it for reuse, which also results in significant variability, environmental impact because of the reclamation chemicals and energy used, and cost. Alternative systems allow for rapid tensioning or re tensioning, but all rely on a single base frame with one or more pieces, causing variability due to two directional tensioning.

The specified dual frame system allows rapid tensioning of the screen/mesh, imaging and use, as a much quicker process than normal. Instead of re-claiming the screen/mesh, it can be disposed of for environmentally friendly reclamation of its components by the screen/mesh manufacturers, leaving the frames ready for instant reuse. The separation of the tension forces with two separate frames simplifies the tensioning process with a single primary tension force direction, reduces the tensioning variables, eliminates the lateral distortion of the image, increasing the size of the useable print area, and simplifies the print process by making the lateral squeegee deflection uniform for the first time in screen printing, thereby improving print quality. The dual frame allows the benefits of achieving a screen printing ink deposit thickness while

eliminating the major additional costs from the conventional printing process from reclaiming the screen/mesh.

The Examiner states that the specification was written in such a way that "it appears that the inner frame is attached in the non-print direction (i.e. along the sides of the mesh) while the outer frame is attached in the print direction (i.e. the ends of the mesh)". The Examiner also states that since "the disclosure uniformly uses the terminology in the print direction with respect to the outer frame and the figures clearly show the outer frame being attached to the ends of the mesh, it will be presumed that in the print direction refers to the ends of the mesh.

Applicant respectfully submits that the Examiner correctly identified the structure and function of the claimed method and apparatus. Once again, the specified method and apparatus for stretching and mounting a screen printing screen attaches ends of the outer frame to ends of the screen/mesh and attaches sides of the inner frame to sides of the screen/mesh. Initially, an end of the screen/mesh is clamped and the other end is stretched with significant tension. The stretched screen/mesh is then attached to ends of the outer frame. The ends of the outer frame are perpendicular to the print direction of the screen/mesh. The sides of the inner frame are then attached to sides of the screen/mesh. The sides of the inner frame are parallel to the print direction of the screen/mesh.

Applicant respectfully submits that one skilled in the screen printing art would have fully understood the specified method and apparatus for stretching and mounting a

screen printing screen so as to be able to understand what was set forth in Claims 1-34. Applicant concedes that inadvertent uses of the phrase "in the print direction" for both the inner and outer frames rendered the claims unclear, but not in a manner sufficient to fail the enablement requirement under 35 U.S.C. § 112, first paragraph.

In any event, Applicant has amended the specification and Claims 1, 4, 5, 18-20, 25-30, and 33 to clarify the specification and claim language. Applicant respectfully submits that the amendments to the specification and claims overcome this rejection, are fully supported by the original disclosure, and introduce no new matter therewith.

Amended Claim 1 recites a method for stretching and mounting a screen printing screen. The method includes the steps of providing an outer frame with two ends generally perpendicular to a print direction; providing an inner frame with two print direction sides generally parallel to the print direction; providing a screen/mesh with two print direction sides and two ends, the print direction sides being generally parallel to the print direction and the ends being generally perpendicular to the print direction; clamping an end of the screen/mesh; applying significant tension forces to the screen/mesh in the print direction to produce a stretched screen/mesh; moving the ends of the outer frame to contact the stretched screen/mesh; attaching the stretched screen/mesh to the ends of the outer frame; trimming excess screen/mesh along the print direction; moving the inner frame to contact the screen/mesh; attaching the screen/mesh to the print direction sides of the inner frame; and providing imaging/printing on the screen/mesh.

Amended independent Claim 18 recites an apparatus for stretching and mounting a screen printing screen. The apparatus includes an inner frame with two print direction sides for attaching to print direction sides of a screen/mesh. The sides of the inner frame are positionable generally parallel to a print direction. The apparatus includes an outer frame with two ends for attaching to ends of a screen mesh. The ends of the outer frame are positionable generally perpendicular to the print direction. The outer frame is placeable outside the inner frame. The inner and outer frames do not connect, support, or constrain each other to provide tension, and enable application of significant tension forces to the screen/mesh in the print direction.

Applicant respectfully submits that amended independent Claims 1 and 18 clearly set forth that the screen/mesh has two print direction sides and two ends, the print direction sides being generally parallel to the print direction and the ends being generally perpendicular to the print direction. An end of the screen/mesh is clamped, and significant tension forces are applied to the screen/mesh in the print direction to produce a stretched screen/mesh.

For example, referring to amended **Figs. 15A, 15B, 15C, 45A, and 45B**, Applicant submits that it is clear that the ends of the outer frame are attached to ends of the screen/mesh, and sides of the inner frame are attached to sides of the screen mesh. The originally filed **Fig. 15A** showed the screen/mesh **146** attached to ends of the outer frame **142**. The illustrated surface of the originally filed **Fig. 15A** screen/mesh **146** corresponded to the non-print surface of the screen/mesh **146**, and was shown in this

manner to show the ends of the screen/mesh 146 attached to the ends of the outer frame 142. Since the Examiner indicated that it was unclear how the inner frames of Figs. 15B and 15C interacted with the outer frame 142 and screen/mesh 146 of originally filed Fig. 15A, Applicant has amended Fig. 15A to show the print surface of the screen/mesh 144. In other words the image has been rotated 180 degrees (e.g., flipped over).

For discussion purposes only, placement of the inner frames 146 and 148 in Figs. 15B and 15C occurs by inserting them within a container structure formed by the outer frame 142 and the screen/mesh 144, where the outer frame 142 can be considered sides of the container structure, and the screen/mesh 144 can be considered the bottom of the container structure. The inner frames 146 and 148 of Figs. 15B and 15C can be lifted up and be inserted in the container structure shown in Fig. 15A (e.g. no flipping occurs) so the sides of the inner frames 146 and 148 contact the print side of the screen/mesh 144 when placed in the container structure shown in Fig. 15A.

With respect to the ink/fluid barriers set forth in Claims 10, 11, 18, 27, and 28, Applicant respectfully submits that a good example showing how an ink/fluid barrier works is shown in Figs. 47A and 47B. An image 1030 of a single-piece inner frame ink/fluid barrier structure 1032 resting on a screen/mesh 1034 is shown in Fig. 47A. When in use, the lateral edges of the ink/fluid barrier structure 1032 rest on the top surface of the sides of an inner frame. Fig. 49 shows a portion of an ink/fluid barrier 1058 on an end or side piece 1052 of an inner frame. The ink/fluid barrier 1058 is

positioned on a screen/mesh **1050** and attached via **1054** (which can be tape) to the printing area of the screen/mesh **1050** and via **1056** (which can be tape or paste) to the end or side piece **1052** of an inner frame. The ink/fluid barrier structure prevents ink applied to the screen/mesh from flowing outside of the inner frame.

The ink/fluid barriers **150**, **152** and **160** shown respectively in **Figs. 16A, 16B, and 17** are similar to the ink/fluid barrier **132** shown in **Fig. 47A**, except they do not rest on the top of the sides of an inner frame. They are merely placed within the inner frame. The cross-hatched inserts shown in these figures function to enhance the structural integrity of the ink/fluid barriers **150**, **152**, and **160**. The three images on the right of **Fig. 18** are structural inserts for the sectional ink/fluid barriers shown to the lower left of **Fig. 18**.

Applicants respectfully request reconsideration and withdrawal of this rejection of Claims 1-34 under 35, U.S.C. § 112, first paragraph.

Claims 1-34 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In particular, the Examiner noted that in Claim 1, it is not clear what the recitation in the print direction encompasses. The Examiner also noted that in Claim 18, it is not clear what the recitations configured for and configured to encompass. The Examiner also noted that in Claims 29-31 and 33 the positive recitation of the screen/mesh lacks proper antecedent basis. Applicant respectfully submits that the amendments to Claims 1, 4, 5, 18-20, 25-30, and 33 obviate this rejection and fully satisfy the specific requirements of 35 U.S.C. § 112, second paragraph.

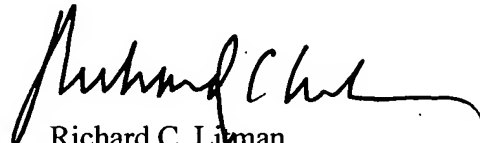
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Applicant respectfully requests reconsideration and withdrawal of this rejection of Claims 1-34 under 35, U.S.C. § 112, second paragraph.

For the foregoing reasons, Applicant respectfully submits that the present application is in condition for allowance. If such is not the case, the Examiner is requested to kindly contact the undersigned in an effort to satisfactorily conclude the prosecution of this application.

Respectfully submitted,



Richard C. Litman
Registration No. 30,868
(703) 486-1000

RCL:tcs

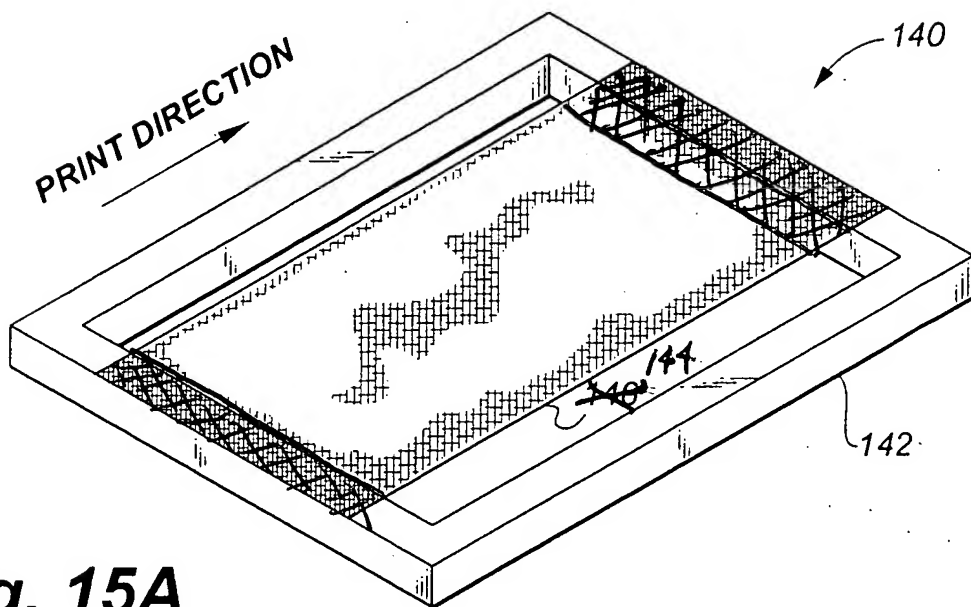


Fig. 15A

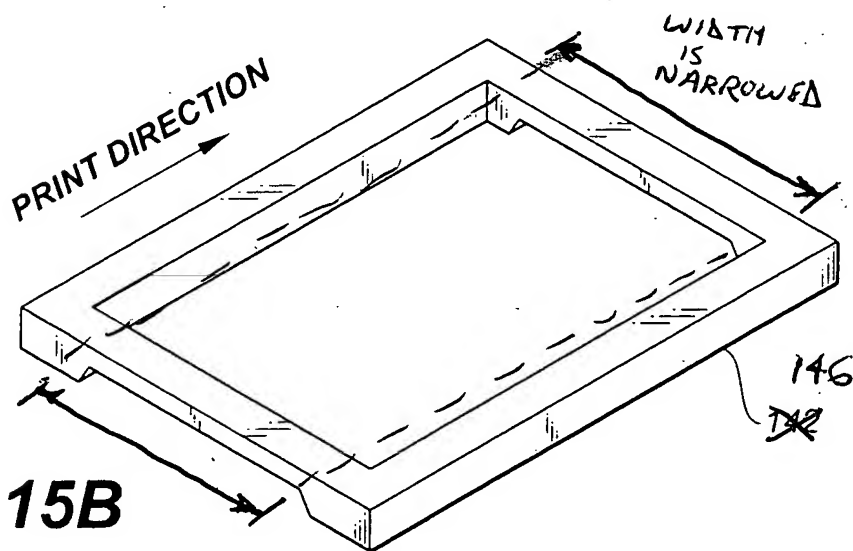


Fig. 15B

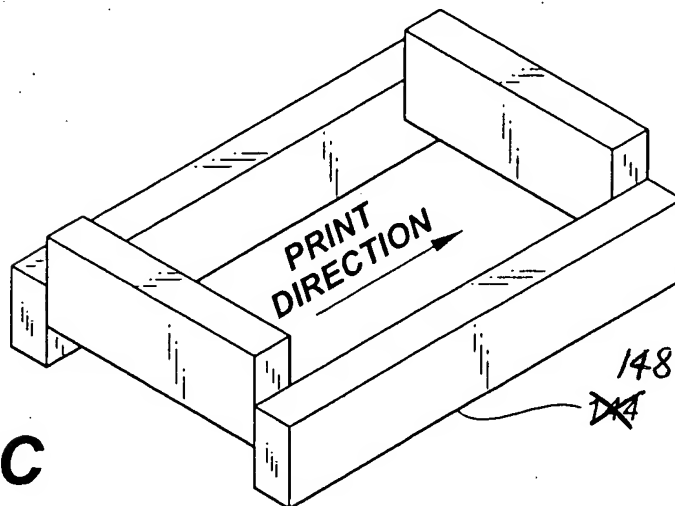


Fig. 15C

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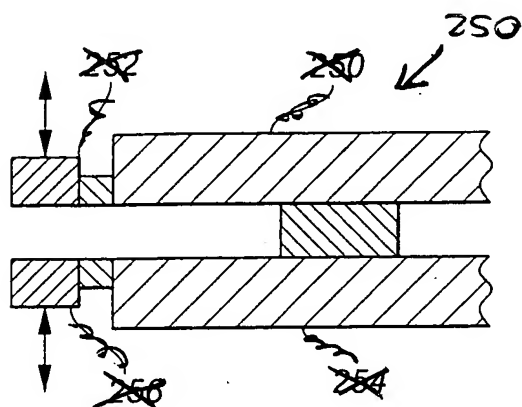


Fig. 23A

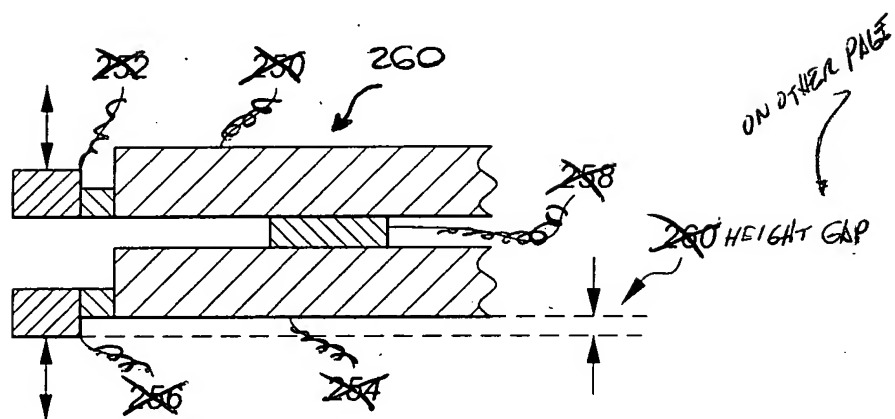


Fig. 23B

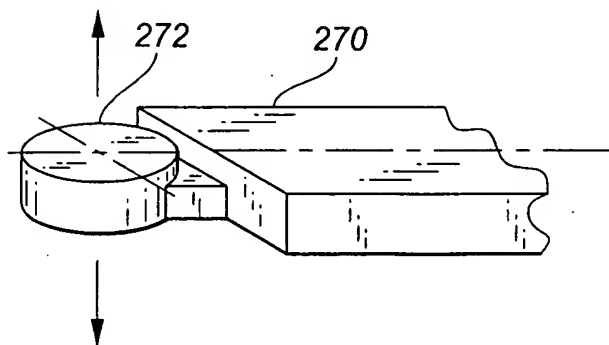


Fig. 24

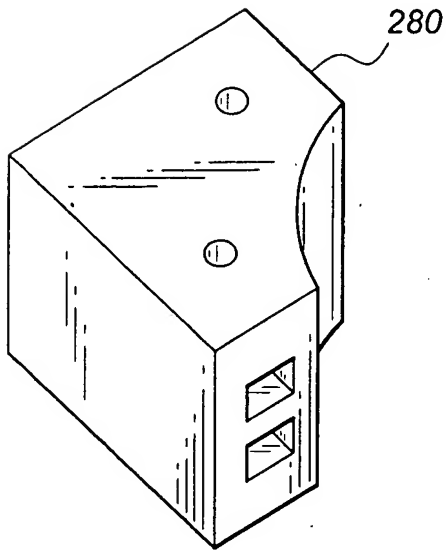


Fig. 25A

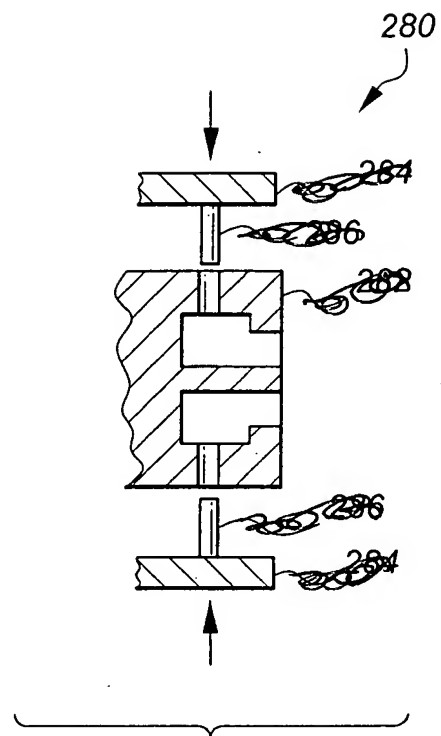


Fig. 25B

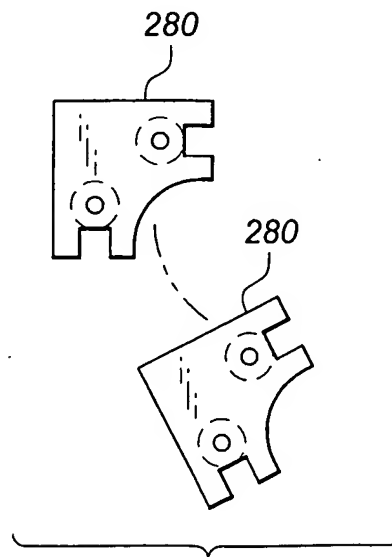


Fig. 25C



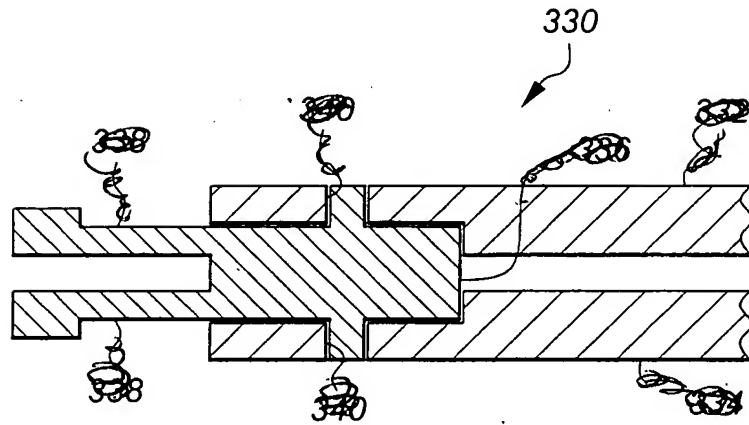


Fig. 26C

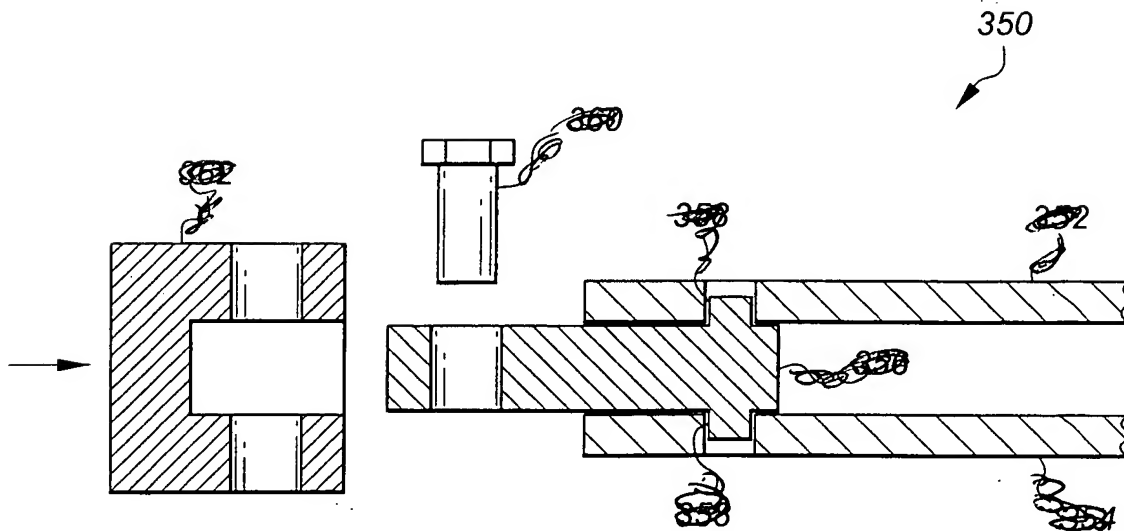


Fig. 26D

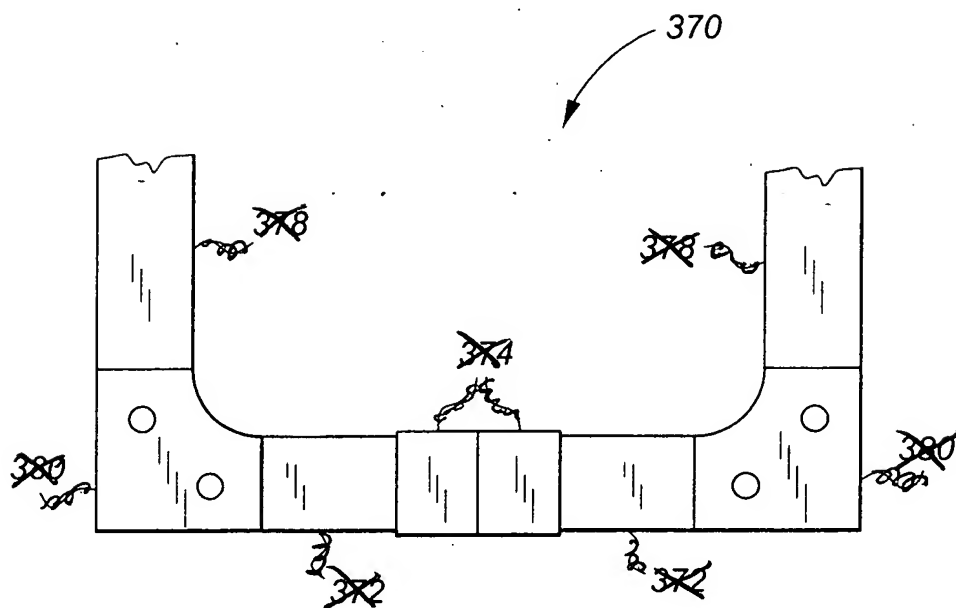


Fig. 27A

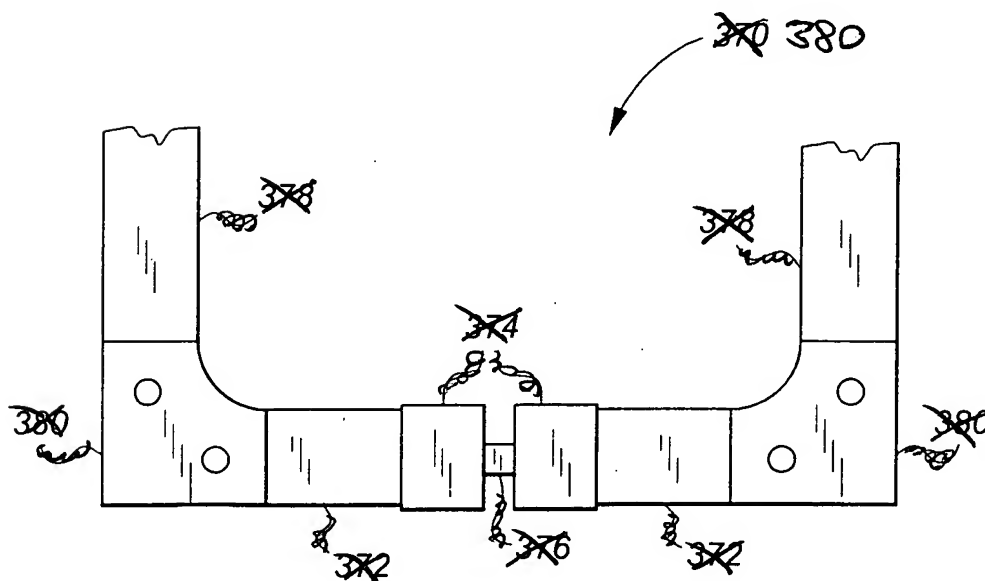


Fig. 27B

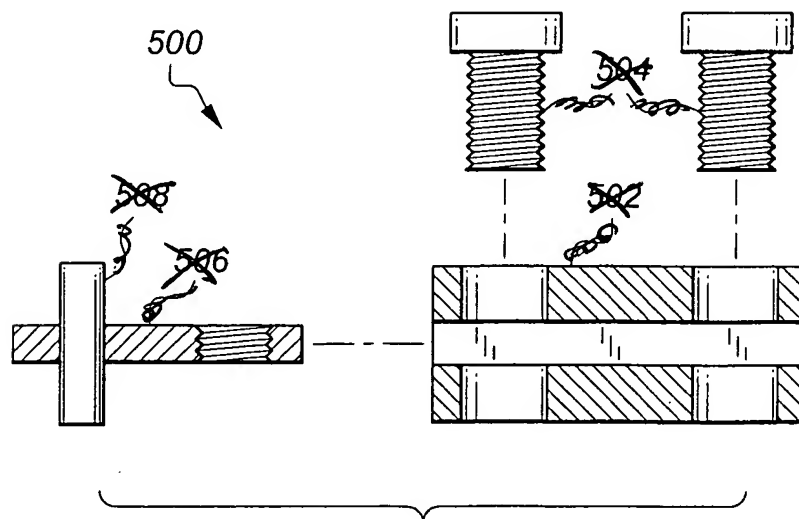
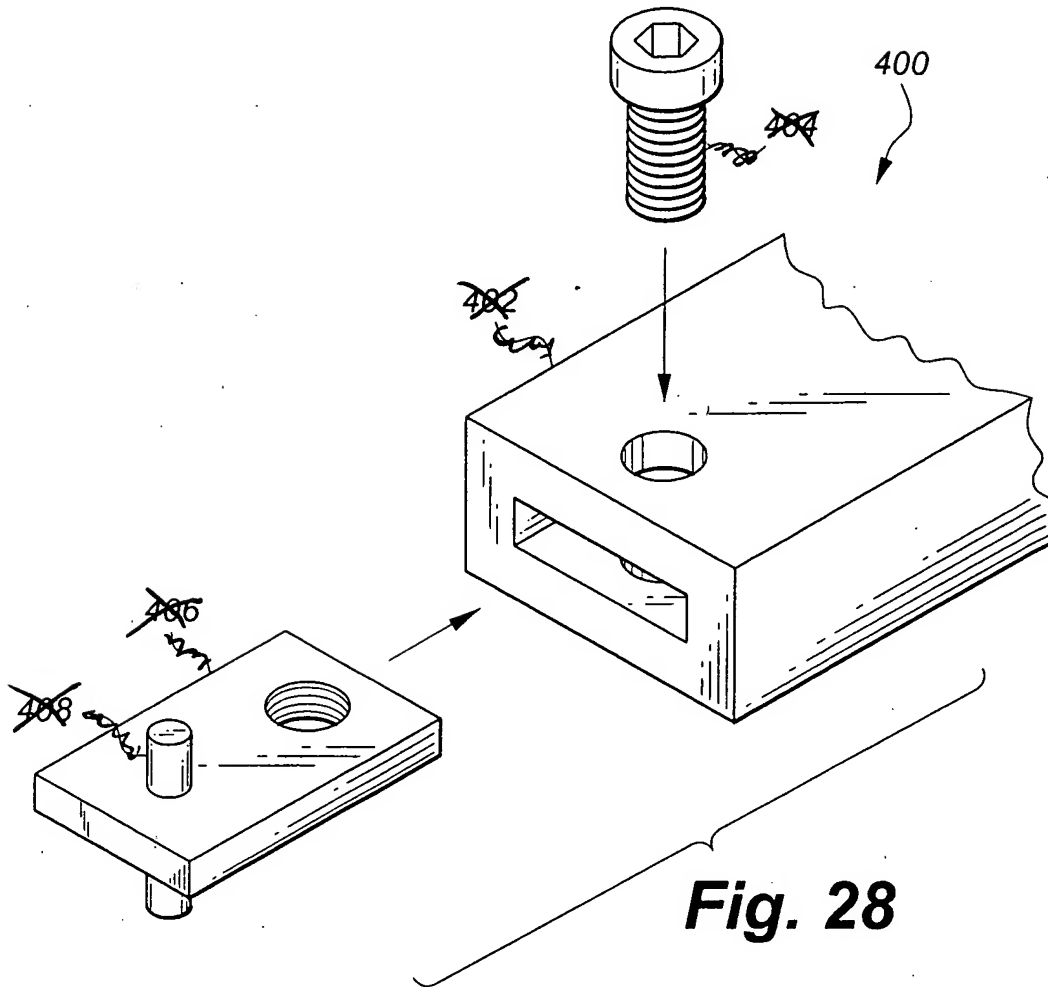


Fig. 29

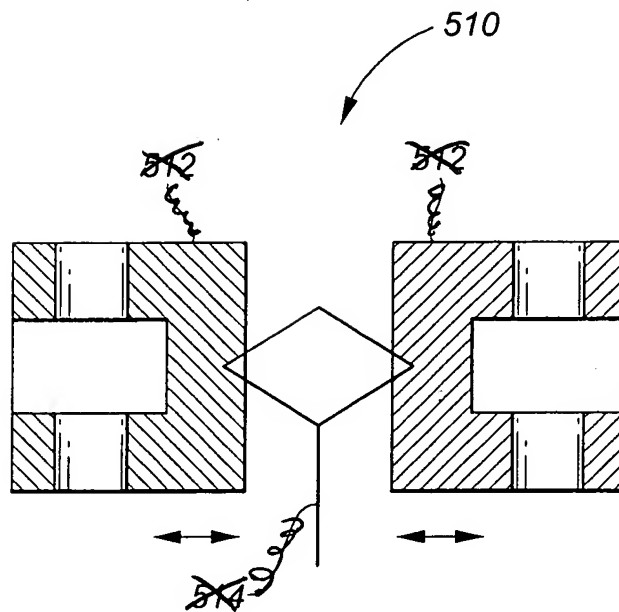


Fig. 30

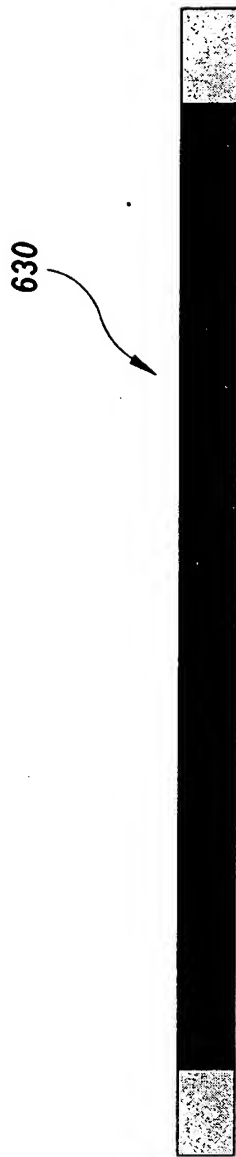


Fig. 33A

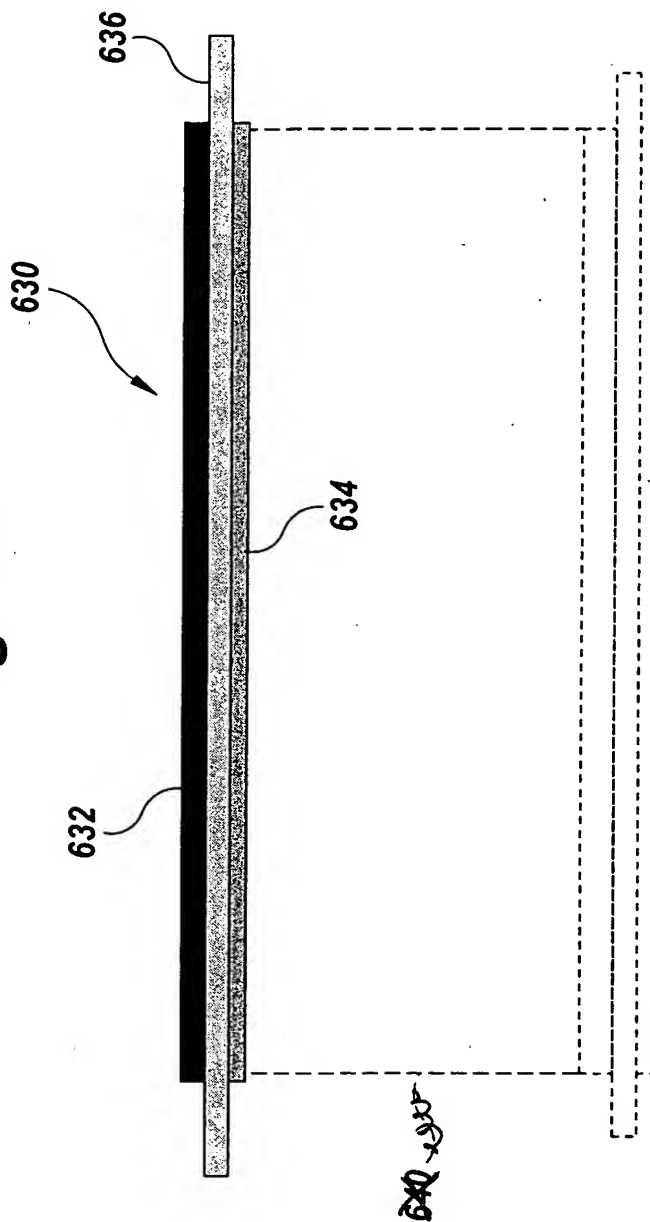


Fig. 33B

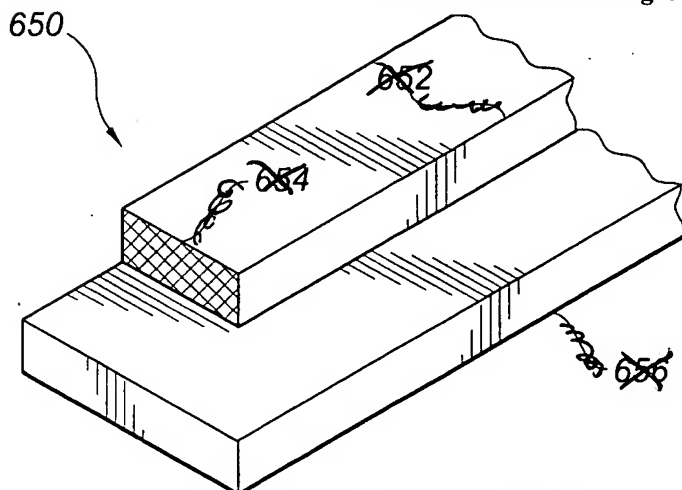


Fig. 34A

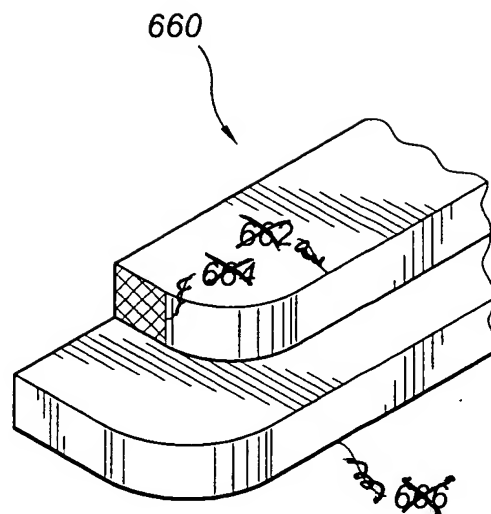


Fig. 34B

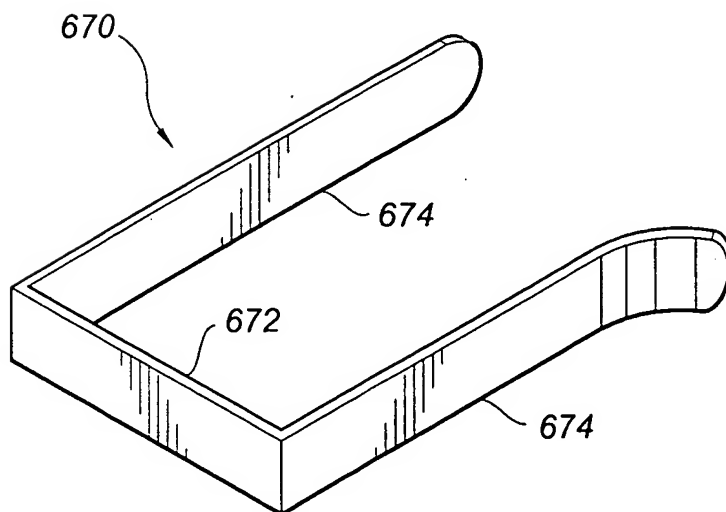
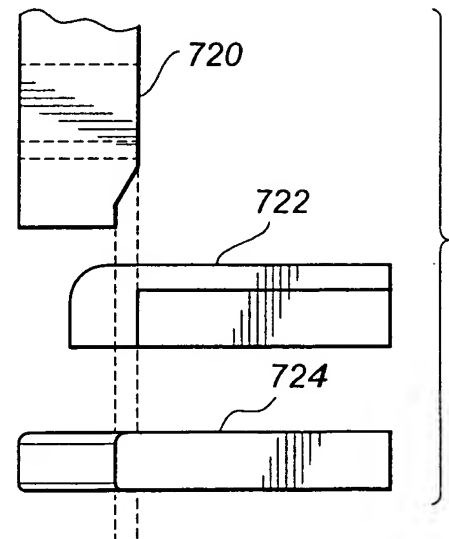
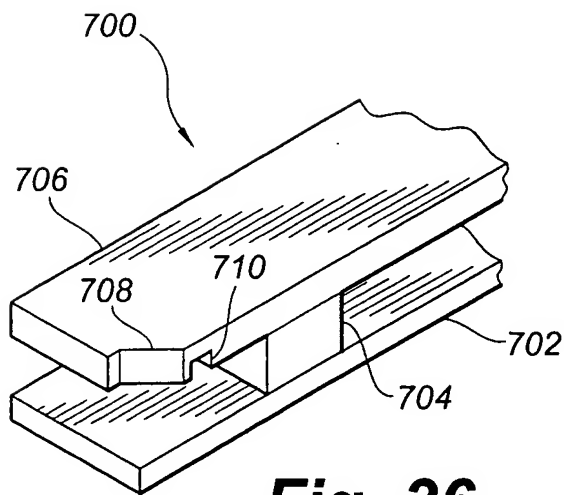
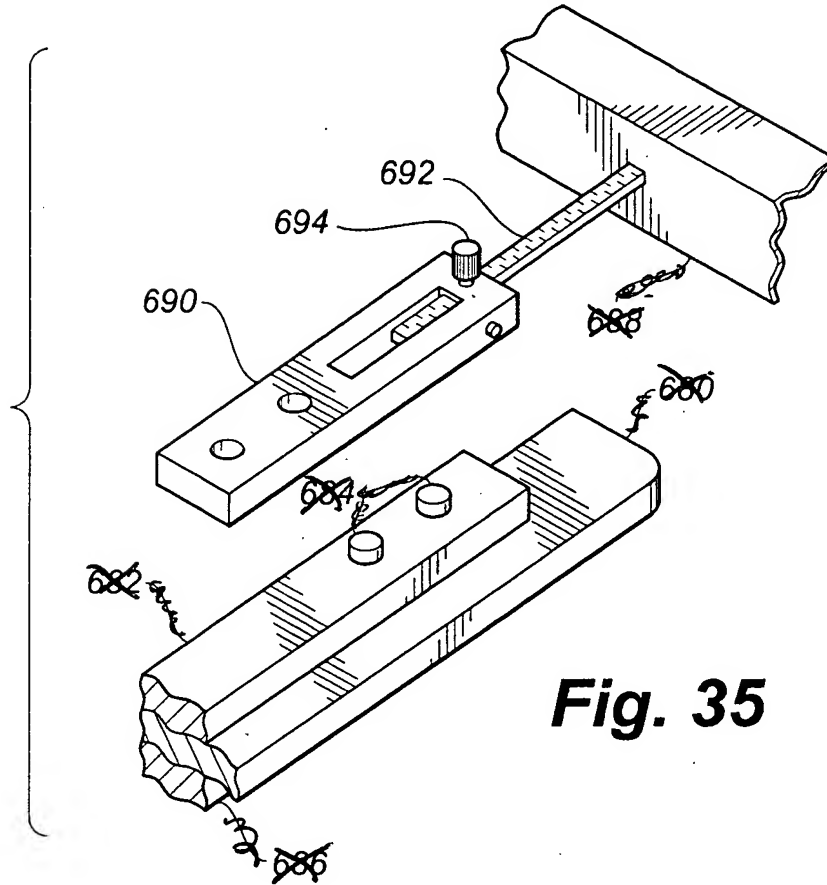


Fig. 34C



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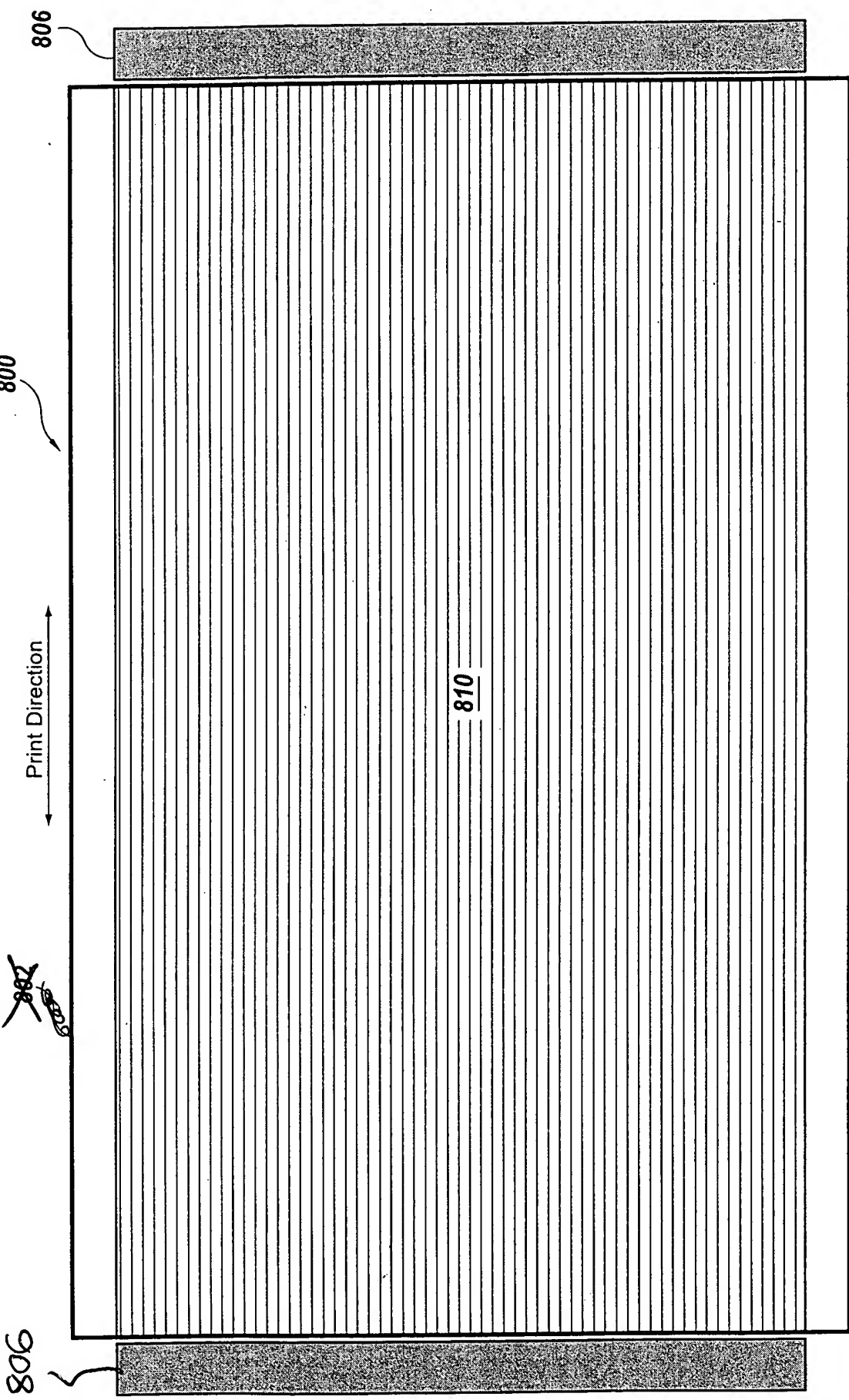
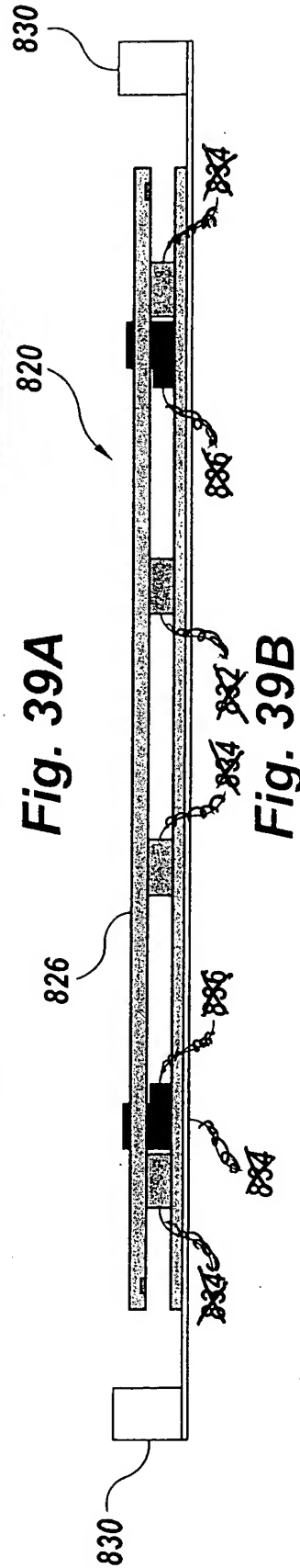
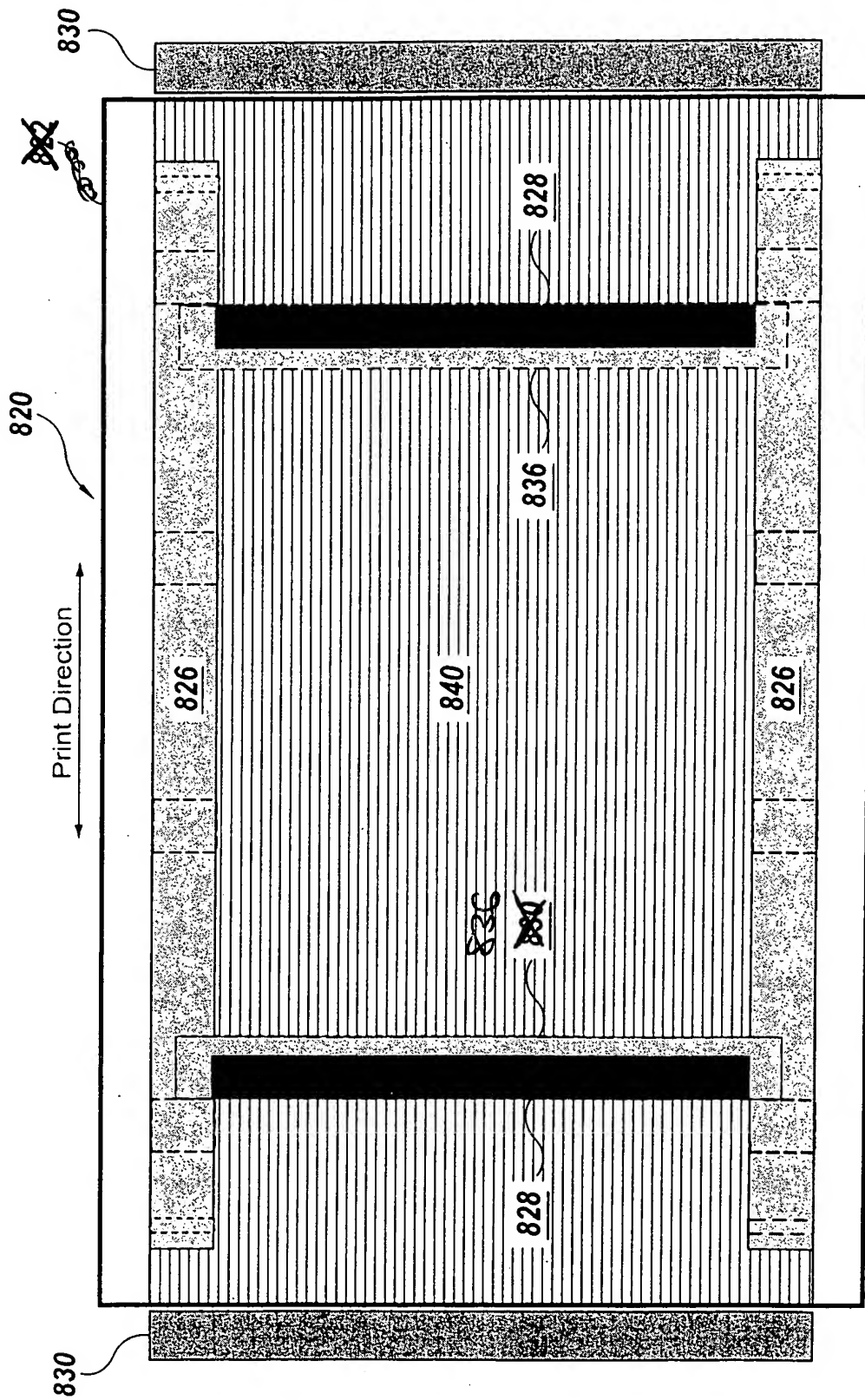


Fig. 38A

Fig. 38B



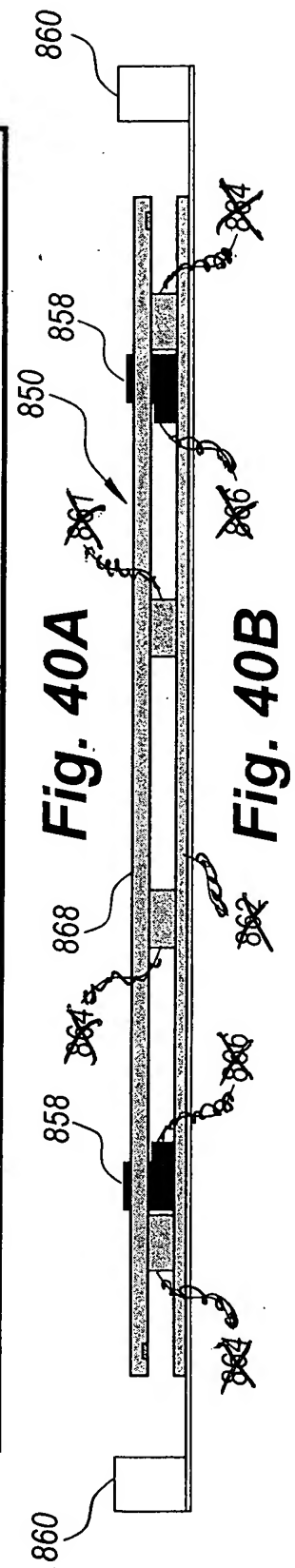
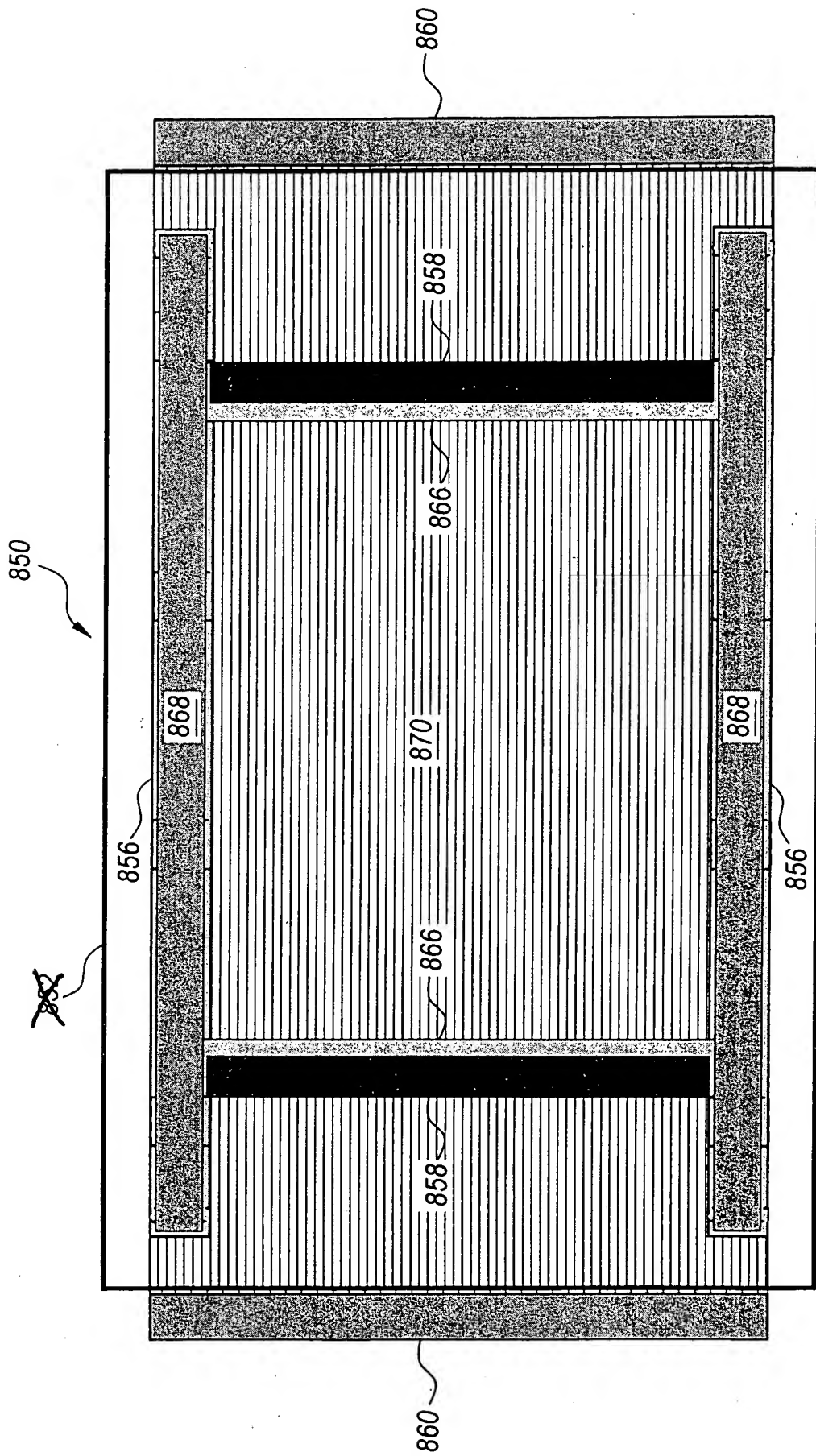
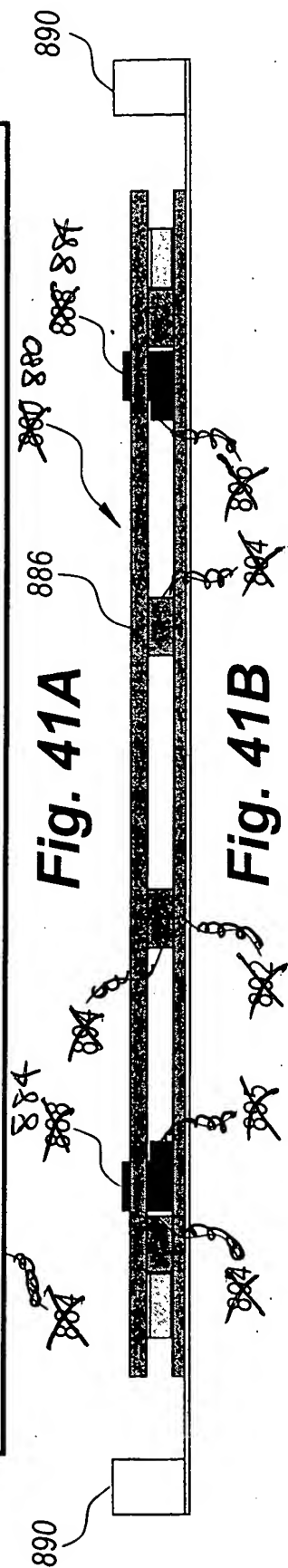
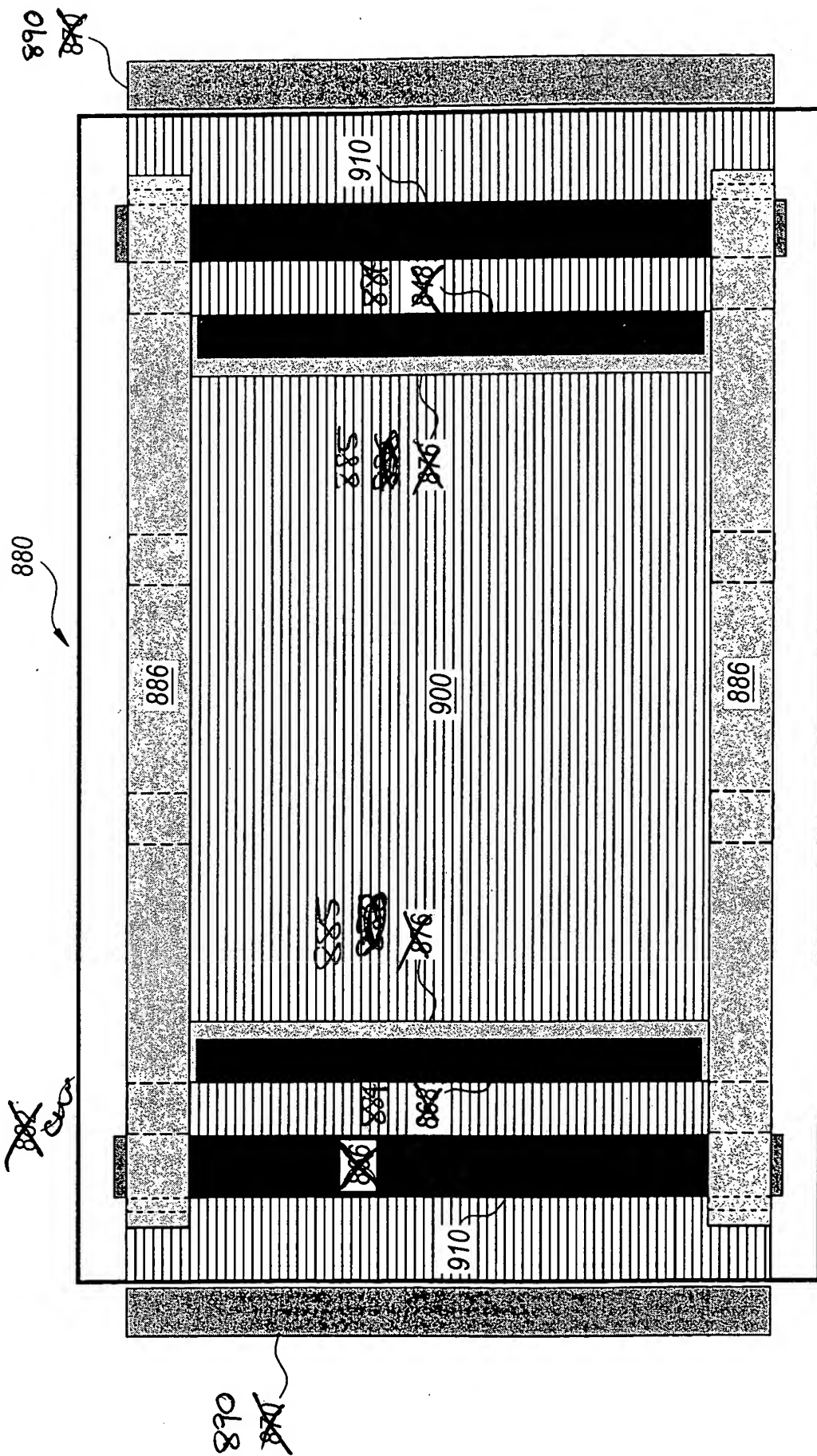


Fig. 40A

Fig. 40B

Annotated Sheet Showing Changes



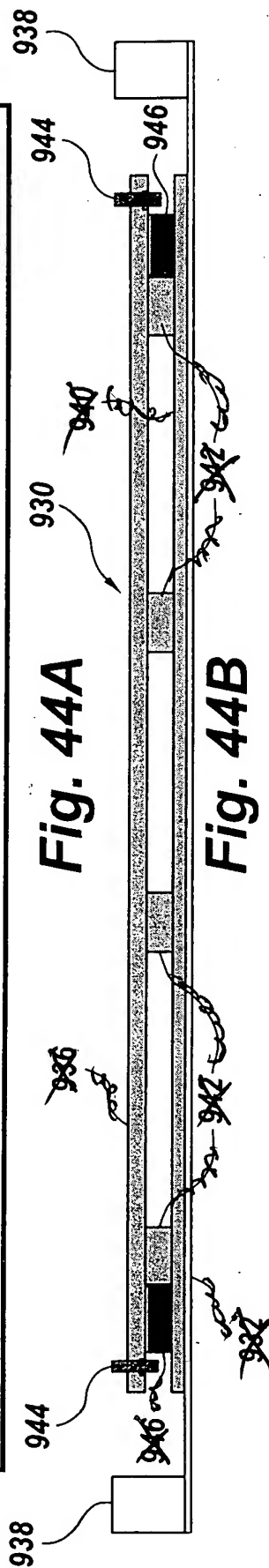
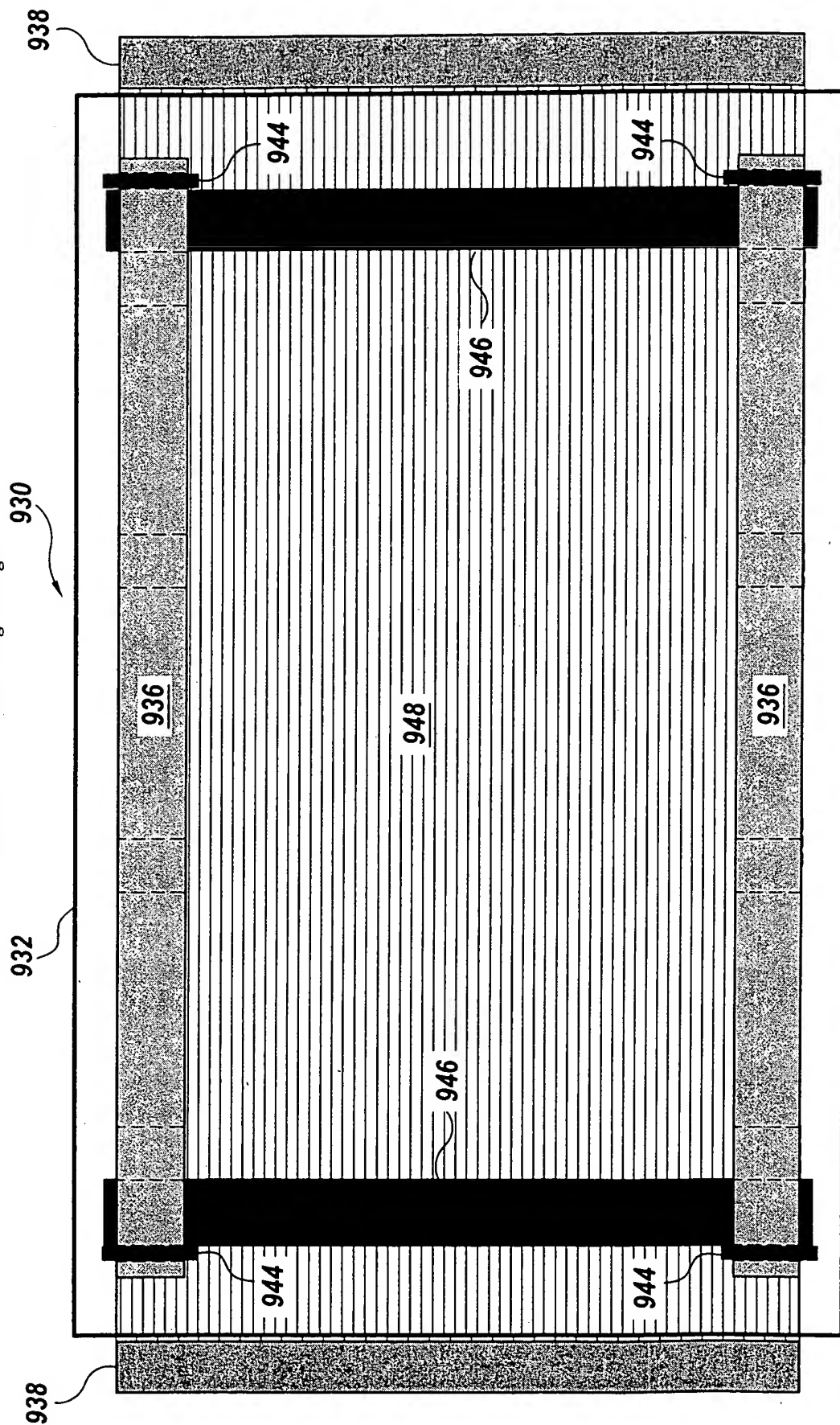


Fig. 44A

Fig. 44B

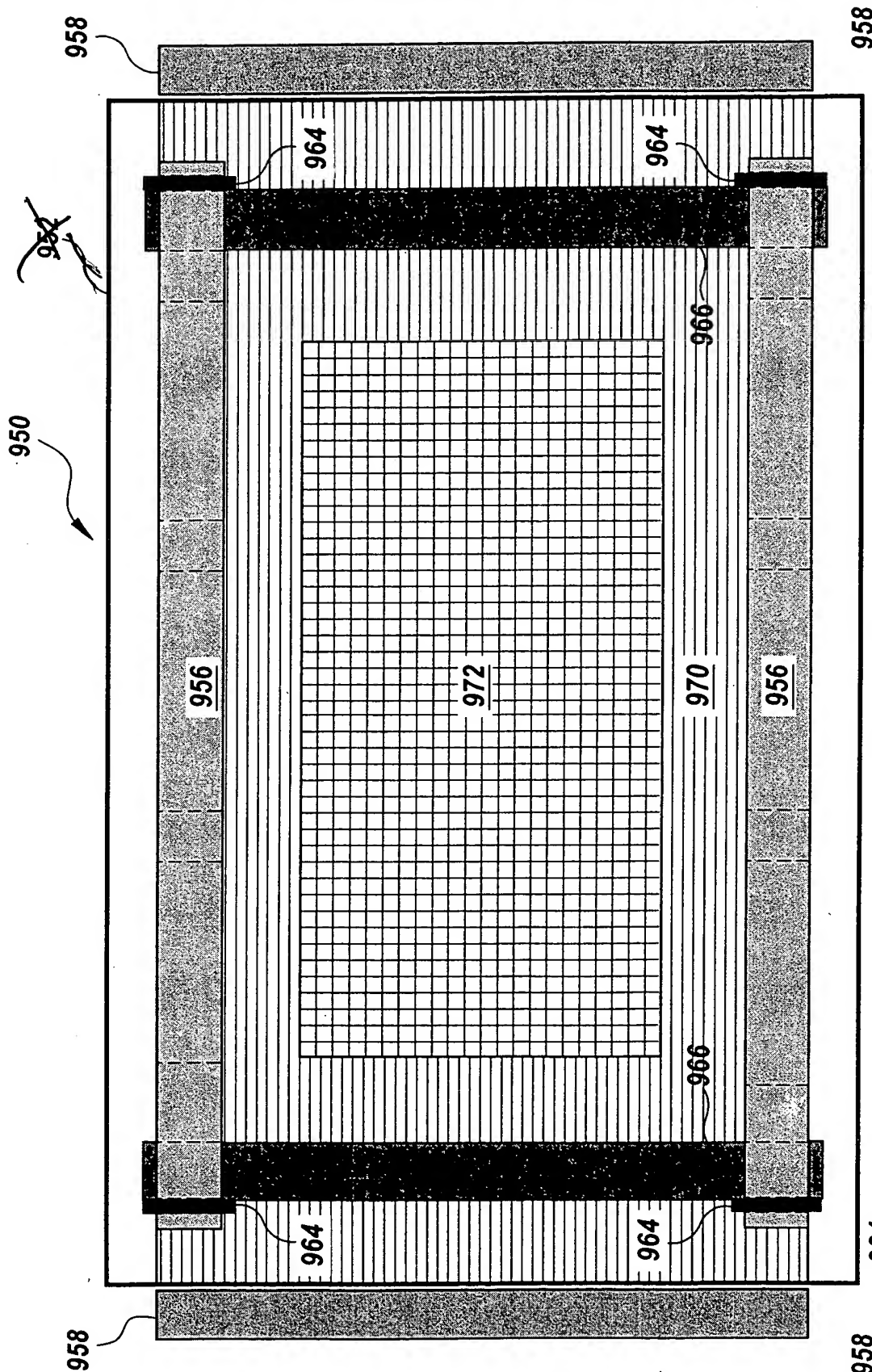


Fig. 45A

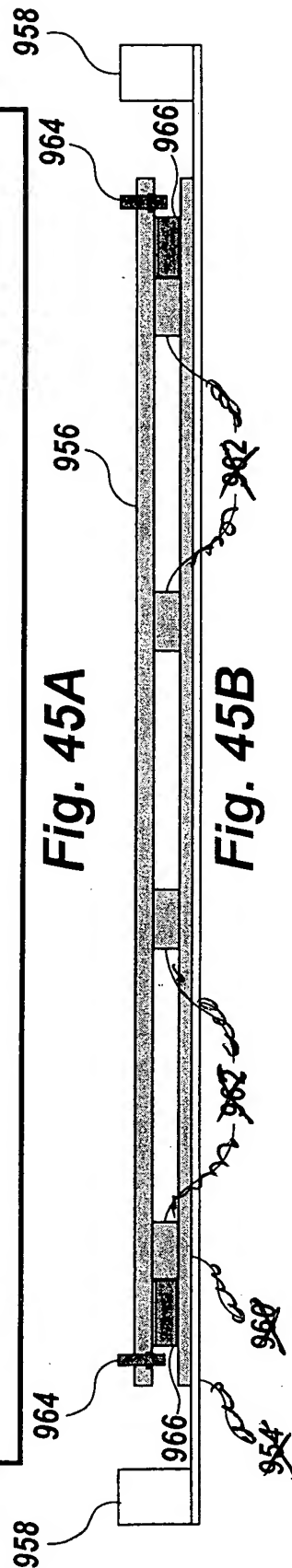


Fig. 45B

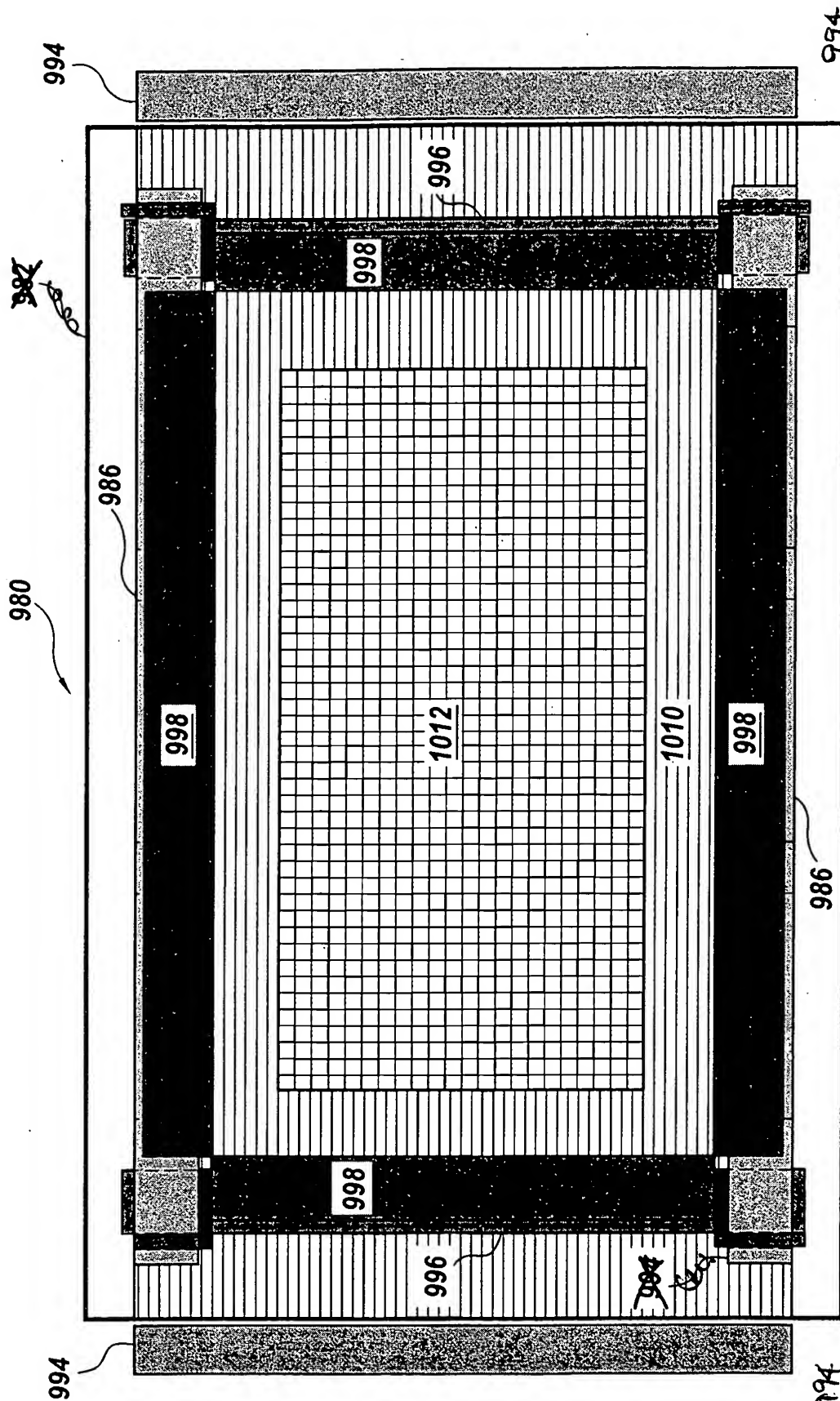


Fig. 46A



Fig. 46B

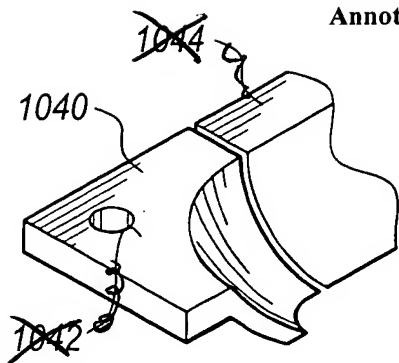


Fig. 48

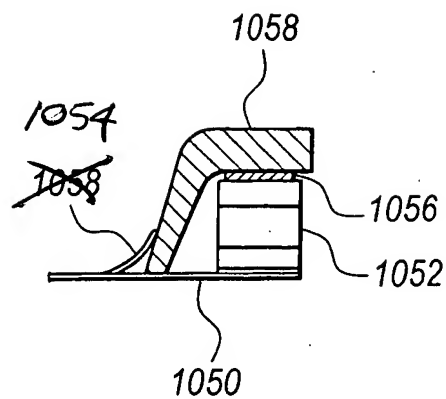


Fig. 49

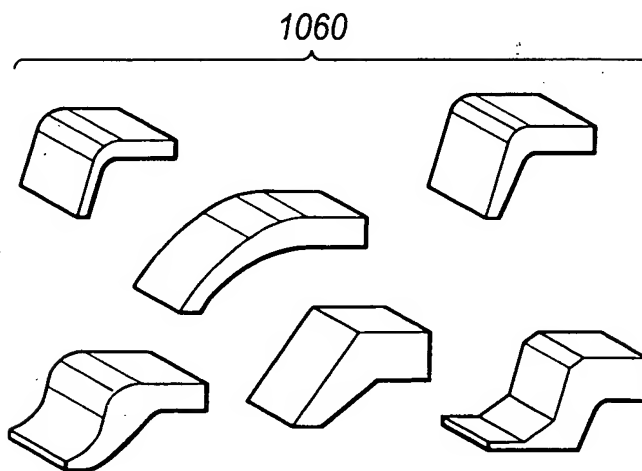


Fig. 50

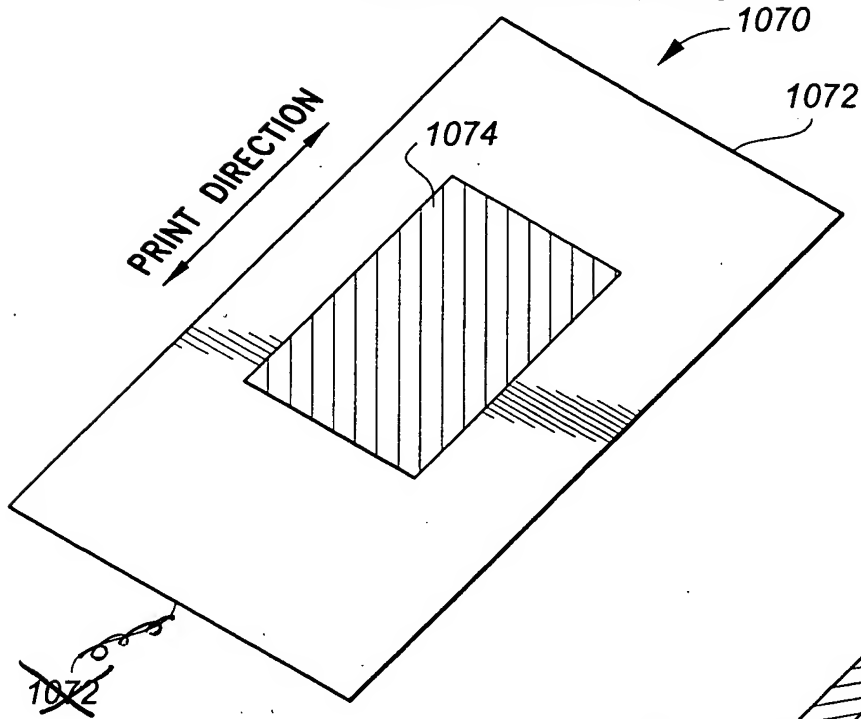


Fig. 51A

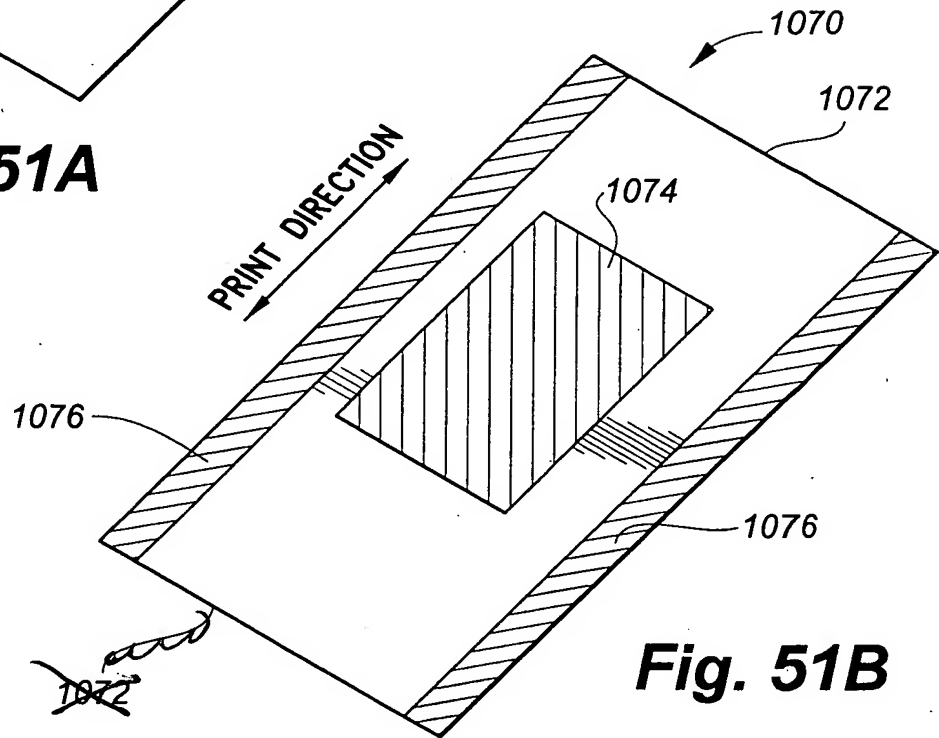


Fig. 51B

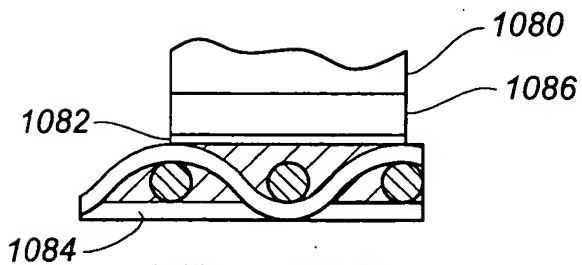


Fig. 51C

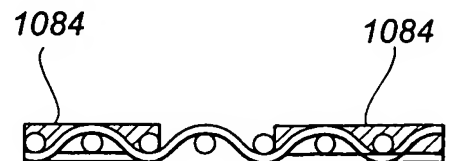


Fig. 51D